APPLICANT: El Paso Natural Gas Co. (EPNG) **February 22, 1999**

PERMIT NO. 1000160

TECHNICAL REVIEW REMARKS

TO ACCOMPANY ALL ENGINEERING REVIEWS

REMARK NUMBER	REMARKS
1.	This is a renewal of an existing permit. There is no fee for permit renewal.
2.	EPNG indicated in the cover letter submitting the Title V permit application that they forwarded a copy of the application to EPA Region IX.
3.	This source is classified as a major source because this facility has a potential to emit (PTE) of more than 100 tons per year of NO_X, CO, and VOC.
4.	Department records and discussions with OAQ Compliance staff indicate that the source is in compliance with these requirements.
5.	Yes. ADEQ has jurisdiction over this source because this facility is located in Cochise county.
6.	EPNG submitted emissions estimates for significant emission sources only. Emissions were not quantified for emission sources deemed insignificant.
7.	See attached remarks and emission calculations.
8.	Construction of the San Simon station (in 1953) precedes all air permitting programs.
9.	There are no emission controls installed at the San Simon station.
10.	There are no applicable standards for these pollutants for this facility.
11.	EPNG may perform asbestos demolition at this facility at some point during the permit term. This demolition would be subject to the requirements of A.A.C. R18-2-1101.A.8 (40 CFR 61 Subpart M.)
12.	Tests were conducted on 12/14/92 and 12/15/92 by the source but these are not performance tests. In fact, these tests were conducted to quantify emissions out of the stacks. Since San Simon compressor station hardly operated after the operation permit was issued in 1994 and compressors had to be fired solely to be tested, no performance test was done.
13.	EPNG has certified that the San Simon station is currently in compliance with all applicable air quality requirements.

TECHNICAL REVIEW OF PERMIT NUMBER 1000167
(El Paso Natural Gas Company, San Simon Compressor Station)

General Comments

El Paso Natural Gas Company (EPNG) provides natural gas transportation services for natural gas suppliers and end users throughout the southwestern United States. EPNG owns and operates a large pipeline network for which the San Simon Compressor Station serves as one of the gas compression locations. Compression is needed to maintain enough pressure in the pipeline to keep the gas flowing

The San Simon station operates three gas turbines to drive the compression units. The gas turbines are powered by the combustion of natural gas. The gas turbine stacks are the primary sources of air pollutant emissions. The primary pollutants present in the stack gases resulting from combustion of natural gas are NOx and CO. Formaldehyde, SO_2, and VOCs are other trace pollutants present in the stack gases. Other equipment on site are comprised mainly of valves, compressor seals, connections and associated piping, and emissions from these units are mainly trace amounts of VOCs.

Regulatory History

El Paso Natural Gas Company (EPNG) is applying for a Title V permit for the San Simon Compressor Station. Currently,

Emissions Calculations

1) Test Data

EPNG submitted test data (not performance tests) for the gas turbine engines. The worst-case test data were for engine A-3 (S/N 95066), tested on 12/14/92, at 99.6 percent load (5906 hp at tested conditions.)

NO_X: (22.67 lb/hr)(4.38) = 99.3 tpy
CO: (12.28 lb/hr)(4.38) = 53.8 tpy
THC: (3.9 lb/hr)(4.38) = 17.1 tpy
VOC: VOC = THC x (.1) = (17.1 tpy)(.1) = 1.71 tpy

2) Emission Factors

Criteria pollutant and total hydrocarbon emissions are calculated below using AP-42 factors from the 1/95 (fifth) edition, Table 3.2-2. Formaldehyde emissions are calculated using data from Table 18 of EPA-450/4-91-012.

Emission factors were calculated assuming a maximum engine power rating of 6335 hp (see Page 6 of EPNG's Title V permit application.)

NO_X: (2.87 lb/10^3hp-hr)(6335 hp)(4.38/1000) = 79.63 tpy
CO: (1.83 lb/10^3hp-hr)(6335 hp)(4.38/1000) = 50.78 tpy
THC: (0.40 lb/10^3hp-hr)(6335 hp)(4.38/1000) = 11.10 tpy
VOC: (0.022 lb/10^3hp-hr)(6335 hp)(4.38/1000) = 0.61 tpy
SO_2: AP-42 emissions are negligible for SO_2 = 0 tpy
Formaldehyde: (0.04 g/hp-hr)(1 lb/453.6 g)(6335 hp)(4.38) = 2.45 tpy

3) Emissions Sources Form Data Submitted By EPNG

EPNG submitted revised emissions estimates for the GE gas turbines at the San Simon facility on 9/30/95. The criteria pollutant and total hydrocarbon emission estimates are based on a computer model of the engine performance, and are the same numbers EPNG submitted to ADEQ in their 8/17/93 application for operating permit M031110P0-99. Formaldehyde emissions are calculated using data from Table 18 of EPA-450/4-91-012, assuming an engine "site" power of 4920 hp (see Table 11-1, page 8, of EPNG's Title V permit application.)

NO_X: 134.47 tpy
CO: 69.64 tpy
THC: 50.37 tpy
VOC: VOC = THC x (.1) = (50.37 tpy)(.1) = 5.04 tpy
SO_2: 0.09 tpy
Formaldehyde: (0.04 g/hp-hr)(1 lb/453.6 g)(4920 hp)(4.38) = 1.90 tpy

4) Emissions Summary

The table below compares the emissions estimates for the gas turbine engines at the San Simon station that were submitted by EPNG, to emissions calculated from test data and emissions calculated using AP-42 emission factors.

* Potential Emissions Summary - EPNG San Simon Station - GE M3672R-A Gas Turbines			
Pollutant	Test Data, 12/14/92 (PTE, tpy)	AP-42 (Fifth Edition) Table 3.2-2 (PTE, tpy)	EPNG Title V application (PTE, tpy)
NO_X	99.3	79.63	134.47
CO	53.8	50.78	69.64
SO_2	not available	0	0.09
VOC	1.71	0.61	5.04
formaldehyde	not available	2.45	1.90

* PTE's assume 8760 hrs/yr operation. There are three GE M3672R-A gas turbines at San Simon station. Emissions in the table above are for one engine.

Discussion

The data above show that the emissions calculations submitted by EPNG in their Title V permit application for the San Simon station exceed the emissions levels measured during performance testing and exceed the emissions calculated using current AP-42 factors. The one exception is formaldehyde, but here the difference arises because EPNG used 4920 hp for the engines, whereas 6335 hp was assumed for the formaldehyde emissions shown in the "AP-42" column.

The emissions inventory (EI) for the year 1994 submitted by the source to the Arizona Department of Environmental Quality (ADEQ) reported emissions of 0.55 tons of CO, 1.81 tons of NOx, 0.00 tons of SO_2, and 0.10 tons of VOCs. The EI for the year 1995 reported zero emissions of CO, SO_2, NOx, and VOCs.

Permit Contents: Attachment B

The three gas turbines were installed in 1953 and uprated 700 hp/engine in 1956 and as such are not subject to the provisions of any of the new source performance standards (NSPS)(A NSPS for gas turbines was promulgated on 9/10/1979 and is listed as Subpart GG of 40CFR60. This contains NOx and sulfur dioxide standards). The state rule that covers gas turbine operations is *R18-2-719 : Standards of performance for existing stationary rotating machinery*. This state rule considers emissions of three pollutants (I) particulate matter, (ii) visible emissions, and (iii) sulfur dioxide. There is no reference to NOx or CO emissions.

Emission Limits/Standards

A. Regenerative Gas Turbines

Natural gas combustion results in negligible particulate matter emissions. The maximum potential particulate emissions from the gas turbines at the San Simon station were calculated to be 2.4 tpy. The emissions standard in R18-2-719.C imposes a particulate matter emissions limit of 94.4 tpy.

The operating permit requires EPNG to combust only natural gas for turbine operations. The sulfur standard in R18-2-719.F refers to low sulfur fuel oils, therefore this standard is not applicable to natural gas combustion. R18-2-719.I and R18-2-719.J require recordkeeping and reporting requirements of fuel sulfur quantity. These requirements support the aforementioned sulfur standard, and as such are not applicable to natural gas combustion. The visible emissions standard, R18-2-719.E, imposes a 40% opacity limitation.

B. Non-point sources

The standards in Article 6 are applicable requirements for non-point sources. The following sources will be monitored:

1. Driveways, parking areas, vacant lots
2. Unused open areas
3. Open areas (Used, altered, repaired, etc.)
4. Construction of roadways
5. Material transportation
6. Material handling
7. Storage piles
8. Stacking and reclaiming machinery at storage piles

All of these areas must comply with the opacity limitation of 40%. The control measures for these sites include gravel for driveways(1) and native vegetation for unused open areas(2). Most of the other sources require control measures of dust suppressants and/or wetting agents(3-8). Material transportation and storage piles also include covering the material (5 and 7), while stacking and reclaiming includes minimizing fall distance (8).

EPNG has indicated in the application, that rare instances of open burning may occur. The condition in the permit directs EPNG to obtain a permit from ADEQ, or the local officer in charge of issuing burn permits.

C. Other Periodic Activities

Abrasive Blasting

EPNG has indicated in the permit application that there might be a few occasions on which abrasive blasting activities are conducted on-site. R18-2-726 and R18-2-702 (B) are applicable requirements, and as such have to be included in the permit.

Spray Painting

EPNG has indicated in the permit application that there might be a few occasions on which spray painting activities are conducted on-site. R18-2-727 and R18-2-702(B) are applicable requirements, and as such, have to be included in the permit. R18-2-727(A) and R18-2-727(B) are included in the approved State Implementation Plan (SIP). R18-2-727(C) and R18-2-727(D) are also a part of the approved SIP. They are present in the definitions section of the SIP as R9-3-101.117. EPA approved SIP provision R9-3-527.C is not present in the amended rule. However, R9-3-527.C is an applicable requirement, and is federally enforceable till the current State SIP is approved by the EPA.

Mobile Sources

EPNG has indicated in the permit application that there might be a few occasions on which "mobile source" activities are conducted. "Mobile sources" refer to those sources covered by Article 8. R18-2-801, R18-2-802, and R18-2-804 are applicable requirements, and as such, have to be included in the permit.

Monitoring and Recordkeeping Requirements

A. Regenerative Gas Turbines

As noted in a preceding discussion, natural gas combustion results in minimal particulate matter emissions. It was therefore decided that even though an emissions standard exists for particulate matter, it would be unnecessary and impractical to have a rigorous monitoring schedule for the particulate standard. For similar reasons, it was decided that a monitoring schedule for opacity would not be required.

"Pipeline-quality" natural gas has to conform to standards approved by the Federal Energy Regulatory Commission (FERC). One of the FERC standards limits the sulfur content in the gas to less than 5 grains/100 scf (which is equivalent to 0.017 weight percent of sulfur). Another standard specifies that the heating value be greater than or equal to 967 Btu per cubic foot. EPNG runs the gas turbines with fuel drawn from their pipeline, and therefore it was decided that maintaining a copy of the FERC approved Tariff agreement on-site would be an adequate means of complying with the monitoring requirements for the particulate, opacity and fuel use standards.

The permit requires the permittee to report the dates of operation of the turbines semi-annually, during the six months prior to the date of report.

B. Non-point Sources

The specific non-point sources are listed in the above section. Monitoring and recordkeeping requirements for driveways (1) includes maintaining the gravel, and keeping a log of dates new gravel is added. Unused open areas (2) includes a monthly status of the areas and dates fresh vegetation was added. All other non-point sources (3-8) require a record of the date and type of activity performed, and the type of controls used. Also, monitoring requirements for the applicable open burning rule may be satisfied by keeping all open burn permits on file.

C. Other Periodic Activities

Other applicable rules are abrasive blasting, spray painting and "mobile source" activities. It was decided to prescribe minimal monitoring requirements.

Reporting Requirements

The permit requires the permittee to report any change in the FERC approved tariff agreement relating to the sulfur

Abrasive Blasting (Item 5): Abrasive blasting activities have an applicable requirement in the Arizona Administrative Code (AAC). Also, according to the definition in AAC R18-2-101.54, for an activity to be classified as insignificant, it should not have *any* applicable requirement. All projects have to comply with the requirements of R18-2-726 and R18-2-702(B). Refer to Attachment B, I.C.1 and II.C.1.

Spray Painting (Item 7): A similar argument as in Item 5 above provides the reason for including R18-2-726 as an applicable requirement. Refer to I.C.2 and II.C.2.

Emissions Trading (Item 10): ADEQ has determined that EPNG should apply for a permit revision (if necessary) in case there are any changes in the permitted equipment.

Location of records (Item 11): Refer Section II.B, Attachment "B".

Portable Sources (Item 12) : Any contractor operating portable sources on site will need to obtain an air quality permit (if required) to cover the portable source operation.

Air Conditioners (Item 13): Refer to Section XXI, Attachment "A".

Asbestos (Item 14): Refer to Sections I.C.4 and II.C.4, Attachment "B".

Performance Tests (Item 15): Refer to Section VI, Attachment "B".